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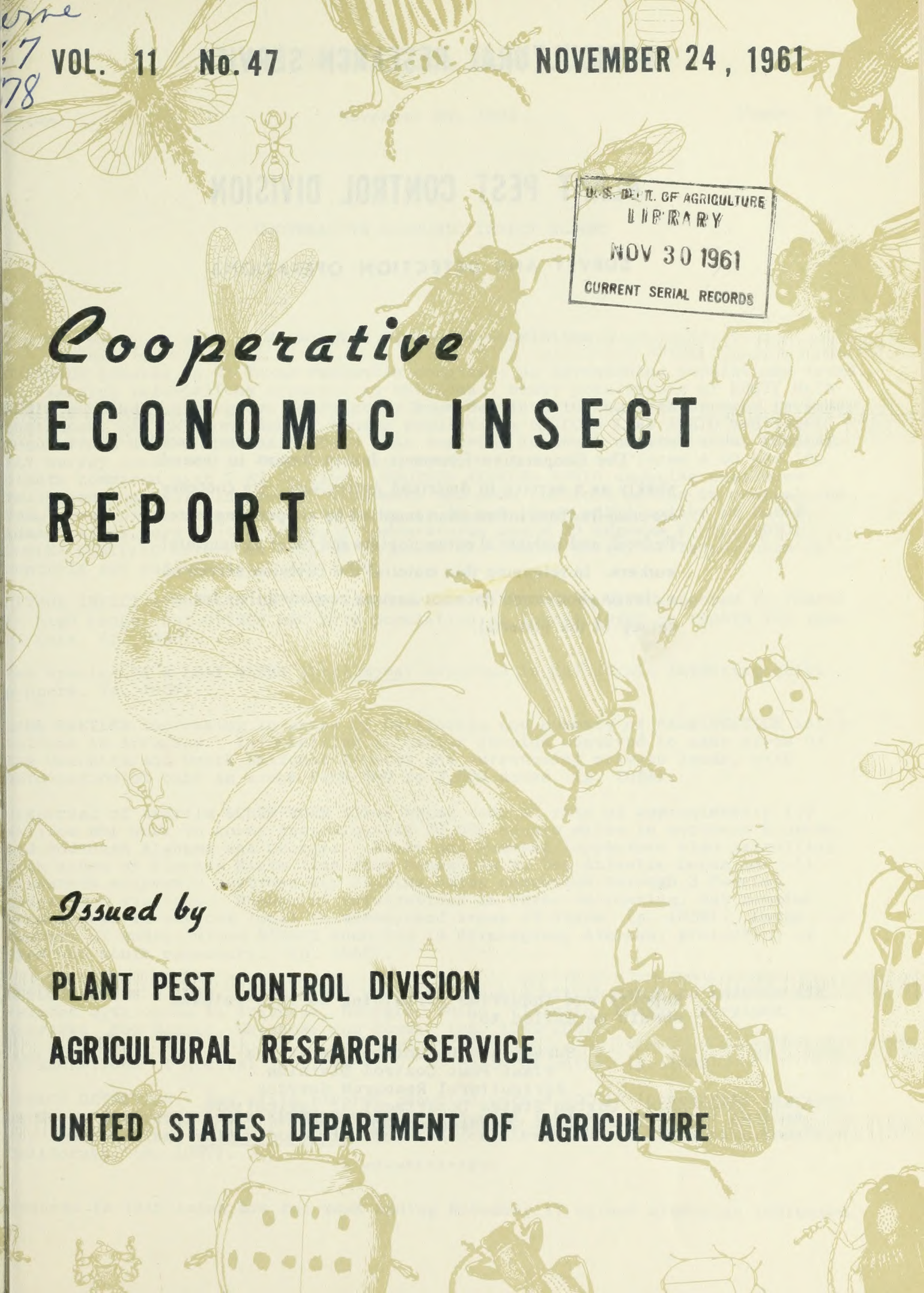

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

Volume 11 November 24, 1961 Number 47

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GREENBUG present in 21 Texas Panhandle counties; no threatening populations found. No damaging infestations reported in Oklahoma. Heavy populations of RUSTY PLUM APHID continue on sorghums in Arizona; honeydew interfering with harvest in some instances. In Oklahoma wheat, medium populations of CORN LEAF APHID and light populations of ENGLISH GRAIN APHID also reported in south central area. HESSIAN FLY survey conducted in east-southeast section of Illinois; forms 4.00 per 100 plants compared with 7.87 in 1960. SPOTTED ALFALFA APHID damaging scattered fall-seeded alfalfa in central Tennessee and some controls needed in central and Yuma areas of Arizona. Populations up to 50 per plant still active at Parma, Idaho, after more than 8 hours of temperatures below 20 degrees F. (p. 1055). COWPEA CURCULIO severe on cowpeas in lower Rio Grande Valley of Texas; chemical controls not satisfactory. (p. 1056).

CITRUS INSECT situation in Florida reported; CITRUS RUST MITE expected to remain in high range, but CITRUS RED MITE population at lowest level on record for time of year. (p. 1056).

New species of a LEAF MINER (*Liriomyza*) reported in California infesting chili peppers. (p. 1057).

BARK BEETLES increasing in areas of California and summary of WALKINGSTICK infestations in Arkansas. Infestations of latter species observed in many areas of the Ouachita and Ozark National Forests and surrounding private lands, with defoliation of oaks in areas from 600 to 3,000 acres. (p. 1058).

Dispersal of sterile SCREW-WORM flies being made at rate of approximately 1.5 million per week to cover approximately 30,000 square miles in northern Florida and southern Alabama and Georgia. State and Federal inspectors also patrolling both sides of Florida State line from Pensacola to the Atlantic Ocean, and all livestock shipments destined for Florida being channeled through 3 Federal inspection stations. Number of infestations in Texas decreasing, but remains troublesome in various local to widespread areas of State. (p. 1059). Large numbers of undetermined MIDGES annoying in Birmingham, Alabama; protection of eyes and mouth necessary. (p. 1060).

INSECT LOSSES - 1960: Losses and production costs attributable to insects and related arthropods in Arkansas, Georgia, Idaho, Illinois, Kansas, Maryland, Nebraska, New Mexico, Oklahoma and Texas. (pp. 1062-1081).

INTERCEPTIONS of special interest at U. S. ports of entry. (p. 1082).

INSECT DETECTION: New state records reported were a COCCID (*Conchaspis angraeci*) in Texas (p. 1059) and a SPHECID WASP (*Pemphredon lethifer lethifer*) in Utah (p. 1060). Also, *walnut husk fly* reported for first time in San Benito County, California. (p. 1057).

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Reports in this issue are for week ending November 17 unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-NOVEMBER TO MID-DECEMBER 1961

The Weather Bureau's 30-day outlook for the period mid-November to mid-December calls for temperatures to average below seasonal normals in the area from the Middle and Lower Mississippi Valley westward to the Great Basin, with greatest departures in the Southern Plains. Above normal temperatures are predicted for the Atlantic Coast States and extreme Northern Plains. In unspecified areas, near normal averages are indicated. This temperature pattern favors considerable storminess and heavy precipitation in most of the eastern half of the Nation and also the Southern Plains. Much of this precipitation should occur as snow in a broad band from the Southwest to the Great Lakes. Light precipitation is in prospect for the Far West and extreme Northern Plains.

Weather forecast given here is based on the official 30-day "Resume and Outlook", published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING NOVEMBER 20

Unseasonably mild weather prevailing across the Nation at the beginning of the period ended after one or two days in the Far West,about midweek in the midcontinent area and on Friday in the East.

Temperatures for the week averaged as much as 15° below normal in the southwestern Great Plains and central Rockies and well below normal in all areas west of the Continental Divide. Subzero minima occurred at most higher elevations in the Rocky Mountain region, with lows of -22° in Wyoming and -27° in Colorado. Temperatures fell almost to zero in the Great Basin area and frost caused slight damage to vegetable crops in some interior valleys of California late in the week.

The week was warmer than normal in the northern Great Plains, about normal in the Mississippi Valley, and unusually warm in the southeast area where weekly averages were as much as 9° above normal.

Precipitation fell over the east and south central areas the first two days of the period, the midcontinent areas on Wednesday and over the northeastern quarter on Thursday. A weak storm system over southern California on the 16th moved across the Nation producing a band of precipitation from northern Nevada to the Middle Atlantic Coastal States. Total precipitation for the week was very light from the extreme upper Mississippi Valley and northern Great Plains to the Cascade Mountains. Amounts exceeded 0.50 inch at many points in the central and lower Rocky Mountain area and east of a line joining Escanaba, Michigan, to El Paso, Texas, except that amounts were very light in Florida and South Atlantic Coastal areas. More rain is still needed badly in Florida, central and southern Georgia and parts of the Carolinas. Moderate to heavy precipitation fell in California and Nevada as the period ended.

Snow fell in the West and many northern areas in the course of the week. A storm in the Southwest, at the beginning of the period, produced up to 2 feet of snow in the White Mountains of Arizona and heavy falls in the mountains of New Mexico. It also blanketed lower elevations in eastern New Mexico with 1 to 5 inches and west Texas with 1 to 9 inches. At the end of the week, a few inches of snow fell in the Middle Atlantic Coastal sections. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - TEXAS - Survey of 21 panhandle counties revealed presence of this pest in all counties; highest populations (15-40 per linear foot) found in Castro, Floyd and Ochiltree Counties. No threatening populations found. (Daniels). OKLAHOMA - No damaging infestations reported. Light and generally isolated populations present in Bryan, Cleveland, Jackson and Kingfisher Counties. (Okla. Coop. Sur.).

RUSTY PLUM APHID (Hysteroneura setariae) - ARIZONA - Heavy populations continue on sorghums; honeydew interfering with harvest in some instances. (Ariz. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Medium populations, 20 per linear foot, on wheat in south central area; also reported on barley in Blaine County. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - OKLAHOMA - Light populations (2 per linear foot) observed on wheat in south central area. (Okla. Coop. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - TEXAS - Light and general in several panhandle counties; no economic infestations found. (Daniels).

LEAFHOPPERS - CALIFORNIA - Nymphs and adults of Baldulus maidis heavy on corn plantings in Merced, Merced County. (Cal. Coop. Rpt.). UTAH - Dikraneura carneola and Aceratagallia sanguinolenta moderate along edges of alfalfa and grain fields in Cache and Salt Lake Counties. (Knowlton).

CORN EARWORM (Heliothis zea) - NEBRASKA - Very light throughout State this season. Fall survey indicated little damage occurring to corn ears. (Bergman).

HESSIAN FLY (Phytophaga destructor) - ILLINOIS - Fall population survey conducted in east-southeast section. The following table gives results of 1961 survey, compared with that of 1960.

Survey dates	Percent fields planted before fly-free date	Percent plants infested	Forms per 100 plants
1960 Oct. 31-Nov.3	4.8	3.5	7.87
1961 Nov. 14-15	11.5	2.13	4.00

Although fields obviously planted on or about recommended seeding date were examined, no infestation was found. (Ill. Ins. Rpt.).

A MITE - TEXAS - Rather heavy, local populations of an undetermined species attacking wheat in Moore County. (Gossett).

SPOTTED ALFALFA APHID (Therioaphis maculata) - TENNESSEE - Damaging scattered fall-seeded alfalfa in central part of State. (Mullett). OKLAHOMA - Light on alfalfa in Grady County. (Okla. Coop. Sur.). ARIZONA - Infestations continue in some central area fields; some controls needed in some fields in this area as well as in Yuma area. (Ariz. Coop. Sur.). UTAH - Few still present in alfalfa in Cache County. (Knowlton). IDAHO - Populations up to 50 individuals per plant still active at Parma after more than 8 hours of temperatures below 20 degrees Fahrenheit; mostly first and second instars, with few apterous females present. (Waters).

PEA APHID (Macrosiphum pisi) - UTAH - Few still present in Cache County alfalfa fields. (Knowlton). NEBRASKA - Approximately 40 per alfalfa plant existed under snowcover in Antelope and Knox Counties. (Bergman). DELAWARE - Increased slightly to average of 7 per sweep on alfalfa in Kent and Sussex Counties. (Burbutis, Mason).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Populations remain rather high in alfalfa in Yuma County. Generally, populations decrease by this time of year. (Ariz. Coop. Sur.). UTAH - Several species, largely *L. elisus*, continue active in alfalfa in Cache,Box Elder and Beaver Counties. (Knowlton). DELAWARE - *L. lineolaris* adults per 100 sweeps in alfalfa averaged 250 in Sussex County and 50 in Kent County. (Burbutis, Mason).

COWPEA CURCULIO (*Chalcodermus aeneus*) - TEXAS - Severe populations attacking cowpeas in lower Rio Grande Valley. No chemicals have given satisfactory control, apparently because of great population pressure. (Deer).

ALFALFA WEEVIL (*Hypera postica*) - UTAH - Adults numerous in litter about alfalfa fields at Logan and Paradise, Cache County. (Knowlton).

SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) - DELAWARE - Adults average 50 per 100 sweeps in alfalfa in Kent and Sussex Counties. (Burbutis, Mason).

MAIZE BILLBUG (*Sphenophorus maidis*) - ALABAMA - Severe infestations of larvae of this species, in combination with immature forms of an undetermined stink bug, feeding on chufas planted for wildlife. Damage has been quite severe in Conecuh County. (Buttram).

NORTHERN MASKED CHAFER (*Cyclocephala borealis*) - MARYLAND - Severely injured several lawns at Glenridge, Prince Georges County, this fall. (U. Md., Ent. Dept.).

MIRIDS - UTAH - *Anapus americanus*, with fewer numbers of *Stenodema vicinum*, damaged range grasses in Franklin Basin along both sides of the Utah-Idaho State line. Det. by R. C. Froeschner. (Knowlton).

FRUIT INSECTS

PEACH TREE BORER (*Sanninoidea exitiosa*) - OKLAHOMA - Reported in peach trees in Choctaw County. (Okla. Coop. Sur.).

SAN JOSE SCALE (*Aspidiotus perniciosus*) - CALIFORNIA - Medium on dooryard apple trees in Oroville, Butte County; light on peach in Davis, Yolo County; medium on walnut in Kelseyville, Lake County. (Cal. Coop. Rpt.).

FLORIDA RED SCALE (*Chrysomphalus aonidum*) - FLORIDA - Collected on pear (*Pyrus* sp.) and jujube (*Zizyphus* sp.) at Cresent City, Putnam County, on October 25, 1961, by A. E Graham, for new host records. (Fla. Coop. Sur.).

Citrus Insect Situation in Florida - Mid-November - CITRUS RUST MITE (*Phyllocoptruta oleivora*) infested 76 percent of groves (norm 72 percent); 54 percent economic (norm 46 percent). Further increase expected and populations will remain in high range in most districts. Highest districts are Bartow, Gainesville, ridge, west coast, Brooksville, Indian River and Orlando. CITRUS RED MITE (*Panonychus citri*) infested 40 percent of groves (norm 56 percent); 11 percent economic (norm 28 percent). Statewide population at lowest level on record for this time of year. Slight increase expected throughout State and scattered groves may develop destructive infestations. Highest districts are west coast, Brooksville and Bartow. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested 30 percent of groves; 10 percent economic. Although population is in low range, infestations are as numerous as in prior years and are increasing. Scattered damaging infestations may be expected in most districts. Highest districts are Gainesville, Indian River, Bartow and Brooksville. FLORIDA RED SCALE (*Chrysomphalus aonidum*) infested 58 percent of groves (norm 63 percent); 6 percent economic (norm 14 percent). Population will continue at low level. Only a few spotty infestations will be troublesome. Highest districts are ridge, Indian River and Bartow. PURPLE SCALE (*Lepidosaphes beckii*) infested 73 percent of groves; 6 percent economic. Populations may increase slightly but infestations generally will be light and only a few will become important. Highest districts are west coast, Brooksville, ridge, Orlando and Bartow. (Simanton, Thompson, Johnson (Citrus Exp. Sta., Lake Alfred)).

YUMA SPIDER MITE (Eotetranychus yumensis) - ARIZONA - Populations have been greater than usual in some citrus orchards this month. (Ariz. Coop. Sur.).

SHOT-HOLE BORER (Scolytus rugulosus) - ALABAMA - Increasing infestations reported on pecan trees in Mobile County and vicinity. (Buttram).

APPLE BARK BORER (Thamnosphecia pyri) - ALABAMA - Infestations increasing on pecan trees in Mobile County and vicinity. (Buttram).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Single adult taken in trap at Hollister, San Benito County, is a new county record. (Cal. Coop. Rpt.).

GRAPE ROOT BORER (Vitacea polistiformis) - ARKANSAS - Infestations quite common in Fayetteville area, Washington County; as many as 35 larvae ranging 0.3-1.2 inches in length taken recently from root of one plant. (Ark. Ins. Sur.).

COCCIDS - CALIFORNIA - Pollinia pollini light on olive trees in Jamul, San Diego County. Aulacaspis rosae heavy on blackberry plants in Oroville, Butte County. Parlatoria oleae heavy locally on dooryard olive in Yuba City, Sutter County; heavy on pear and cherry trees in nursery in Oroville, Butte County. Aonidiella aurantii heavy on dooryard citrus in Yuba City, Butte County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

FLEA BEETLES - UTAH - Black, undetermined species severely defoliated 4 acres of potatoes at Beaver River City, Box Elder County, this fall. (Jensen, Knowlton).

A LEAF MINER (Liriomyza n. sp.) - CALIFORNIA - Specimens collected from medium infestation on chili peppers in Anaheim, Orange County, by B. Crawmer on October 20, 1961, and reared by B. D. Beyers, determined as a new species by M. Wasbauer and verified by K. Frick. (Cal. Coop. Rpt.).

IMPORTED CABBAGEWORM (Pieris rapae) - DELAWARE - Nearly mature larvae common and causing moderate injury on Chinese cabbage in central Kent County. (Burbutis, Mason).

TURNIP APHID (Rhopalosiphum pseudobrassicae) - OKLAHOMA - Light populations reported on turnips in Cleveland and Bryan Counties. (Okla. Coop. Sur.).

POTATO APHID (Macrosiphum euphorbiae) - DELAWARE - Apterous adults and nymphs averaged 3 per leaf on beets in an area of Kent County. (Burbutis, Mason).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - Adults infesting Chinese cabbage and beets in central Kent County. (Burbutis, Mason).

CORN EARWORM (Heliothis zea) - ARIZONA - Infestation light inside heads of some lettuce being harvested in central area. (Ariz. Coop. Sur.).

DRIED-FRUIT BEETLE (Carpophilus hemipterus) - CALIFORNIA - Medium in sweetpotato tubers in Felton, Santa Cruz County. (Cal. Coop. Rpt.).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - OKLAHOMA - Lint cleaner and gin trash inspections indicate lower counts than during 1960. Gin trash inspections showed the following counts, by counties: Garvin - 12 per 112 bushels; Beckham - 7 per

95 bushels; Roger Mills - 3 per 20 bushels. (Okla. Coop. Sur.). NEW MEXICO - Several late infestations reported in terminal bolls in southern Dona Ana County. (N. M. Coop. Rpt.). CALIFORNIA - Inspection of 5,500 bushels of trash from 115 gin locations, 883 lint cleaner inspecitons, 23,000 green boll inspections and argon light trap inspections were negative for this pest during the period November 11-17. (Cal. Coop. Rpt.).

BOLLWORMS (Heliothis spp., et al.) - CALIFORNIA - Larval population medium in gin trash in Blythe, Riverside County. (Cal. Coop. Rpt.).

CELERY LEAF TIER (Udea rubigalis) - CALIFORNIA - Larvae continue medium in gin trash in Blythe, Riverside County. (Cal. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - CALIFORNIA - Dendrocotonus brevicomis, D. monticolae and Ips spp. increasing in numbers on Camp Sierra area in 5-acre stand of ponderosa pine and 80 acres being killed in groups in Hill Creek Drainage Area, both in Sierra National Forest. (D. Flohr). Heavy populations in epidemic stage, worse than at this time in 1960 in Bass Lake area in 11,672 acres of ponderosa and sugar pines, 13,620 acres in Lewis Creek area and 11,600 acres in Miami Creek Unit in Sierra National Forest. (F. W. Isbell). D. monticolae increasing in sugar pine in North Fork of Middle Fork of Tulare River in 1,280-acre stand of poles and old timber in Springville area of Mountain Home State Park. Trees being killed singly or in groups up to 4. (R. Hunt). ARKANSAS - Some activity by Ips spp. and Dendroctonus terebrans still being observed, but decrease in infestations has occurred since last month. Small spots of infestation may be expected during warm spells during winter. (Ark. For. Pest Rpt., Nov.).

REPRODUCTION WEEVILS - ARKANSAS - Damage has decreased, but trap collections for adults into October showed continued activity. Hylobius pales, Pachylobius picivorus and Pissodes sp. involved in infestations. (Ark. For. Pest Rpt., Nov.).

CALIFORNIA FLATHEADED BORER (Melanophila californica) - CALIFORNIA - Currently very active in old and young knobcone pine stands over widespread area in North Russian Section of Salmon River in Klamath National Forest. (R. J. Devlin).

PITCH TWIG MOTH (Petrova comstockiana) - DELAWARE - Larvae common on twigs of young Virginia pine in southern Sussex County. (Burbutis, Mason). MARYLAND - Caused light injury to Scotch pine located 5 miles north of Cumberland, Allegany County, during 1961. Collected January 11 and May 3. Det. by D. R. Davis. (U. Md., Ent. Dept.).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - ARKANSAS - Infestations persist in a few areas. (Ark. For. Pest Rpt., Nov.).

WALKINGSTICK (Diapheromera femorata) - ARKANSAS - Infestations have been heavy in many areas of the Ouachita and Ozark National Forests and surrounding private lands. Earliest activity was noted in Rich Mountain area north of Mena, Polk County, westward to the Arkansas-Oklahoma State line. Infestations observed in several locations with defoliation of oaks in areas from 600 to 3,000 acres. (Ark. For. Pest Rpt., Nov.). Walkingsticks previously reported in CEIR 11(41):951, 11(44):1023 and 11(45):1034 have been determined as this species. (Ark. Ins. Sur.).

TWIG GIRDLER (Oncideres cingulata) - OKLAHOMA - Activity continues on pecan and elm trees in Choctaw, Muskogee, Noble and Kingfisher Counties. (Okla. Coop. Sur.).

LINDEN LOOPER (Erannis tiliaria) - CONNECTICUT - Male moths numerous in many areas; attracted to lights and lighted windows. (Johnson, Nov. 7).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - ARKANSAS - Observed late in season in northwest areas. Defoliation occurred, but was late enough that serious damage should not result. (Ark. For. Pest Rpt., Nov.).

A GALL MIDGE - WASHINGTON - Probably Contarinia sp., mining needles of Douglas-fir Christmas trees in Newport area, Pend Oreille County; causing rejection of 10-20 percent of trees. (Brannon).

A NOTODONTID (Datana sp.) - CALIFORNIA - Heavy on sumac in Vista, San Diego County. (Cal. Coop. Rpt.).

APHIDS - CALIFORNIA - Aphis sp. heavy on Pittosporum sp. in Balboa Park, San Diego, San Diego County. (Cal. Coop. Rpt.). NEW MEXICO - Heavy populations, probably Anuraphis helichrysi, present on chrysanthemums in Las Cruces area of Dona Ana County. (N. M. Coop. Rpt.).

A WHITEFLY (Aleuroplatus berbericolus) - CALIFORNIA - Medium on holly and Oregon-grape in Yuba City, Sutter County. (Cal. Coop. Rpt.).

COCCIDS - TEXAS - Heavy, local population of Conchaspis angraeci attacking hibiscus in Brownsville, Cameron County. Det. by McDaniel. This is a first State collection for this species. (Texas Coop. Rpt., Day). CALIFORNIA - Parlatoria oleae heavy on rose bushes in a nursery at Oroville, Butte County. Pseudococcus n. sp. medium on variety of juniper in nursery stock in Compton, Los Angeles County. (Cal. Coop. Rpt.).

A MIRID (Hoplomachus affiguratus) - UTAH - Damaged Delphinium barbeyi in Manti Canyon, Sanpete County, during July. Det. by R. C. Froeschner. (Knowlton).

LEAF MINERS - CALIFORNIA - Liriomyza pictella caused heavy damage to dahlia leaves in El Segundo and light damage in Van Nuys and Redondo Beach, Los Angeles County. Phytomyza crassiseta medium on Veronica sp. in Whittier, Los Angeles County. This latter species has now been found established in permanent plantings of Veronica sp. in several local areas of southern part of State. (Cal. Coop. Rpt.).

SPIDER MITES - NEW MEXICO - Undetermined species damaging potted plants in several greenhouses in Bernalillo County. (N. M. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

SCREW-WORM (Callitroga hominivorax) - Dispersal of sterile flies being made from Tallahassee airport, Leon County, FLORIDA, at rate of approximately 1.5 million flies per week to cover approximately 30,000 square miles in northern FLORIDA and southern ALABAMA and GEORGIA. All livestock shipments destined for Florida being channeled through 3 Federal inspection stations located at Geneva (Geneva County), Alabama, and Thomasville (Thomas County) and Folkston (Charlton County), Georgia. About 130 State and Federal inspectors patrolling both sides of Florida State line from Pensacola to the Atlantic Ocean. Domestic livestock, hunting and working dogs, racing greyhounds and circus and zootype animals require Federal permit to enter Florida. (Florida Dept. Agri.; Nov. 9). ALABAMA - No new cases reported in State during period November 11-17. (Buttram). TEXAS - Number of infestations decreasing but remain troublesome in various local to widespread areas of State. (Texas Coop. Rpt.).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Approximately 3,000 head of cattle dipped at Beaver, Beaver County. Adults conspicuously annoying to cattle in area during past summer. (Knowlton). OKLAHOMA - Checks for H. lineatum in Stillwater area, Payne County, negative; averaged 2 per animal checked in Grady County; also reported in Bryan and Choctaw Counties. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Counts considerably reduced throughout State due to cold weather; counts less than 5 per animal in Stillwater area, Payne County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Counts of 2 per animal on animals in Stillwater area, Payne County. (Okla. Coop. Sur.).

SHEEP KED (Melophagus ovinus) - UTAH - Numerous in home flock at Paradise, Cache County. (Knowlton).

HOUSE FLY (Musca domestica) - OKLAHOMA - Populations continue about same as reported preceding week; continue annoying in homes and heated shelters. (Okla. Coop. Sur.).

MIDGES - ALABAMA - Large numbers of undetermined species annoying in downtown Birmingham, Jefferson County. Swarms so large, protection of eyes and mouths necessary. (Buttram).

CATTLE LICE - UTAH - Approximately 3,000 head of cattle dipped at Beaver, Beaver County, for control. Some cows rubbing due to infestations in Logan-Avon area of Cache County. (Knowlton). Controls also applied to 3,000 head of cattle in Heber area, Wasatch County. (Knowlton, Daniels).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - DELAWARE - Common on small flock of chickens in northern New Castle County. Det. by R. F. Darsie. (Burbutis, Mason).

STORED-PRODUCT INSECTS

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - ALABAMA - Large infestation present in kitchen of home in Huntsville, Madison County. (Buttram). DELAWARE - Infesting food supplies in home in Wilmington, New Castle County. (MacCreary).

BENEFICIAL INSECTS

SPHECID WASPS - UTAH - Stigmus inordinatus inordinatus and Pemphredon lethifer lethifer collected from tunnels of rose stem girdler (Agrilus rubicola) in raspberry canes in Utah, Salt Lake and Davis Counties during period 1959-1961. Det. by K. V. Krombein. Specimens of P. lethifer lethifer constitute a new State record. (Raghuvir, Davis, Knowlton).

A BEE (Ceratina acantha submaritima) - UTAH - Collected from tunnels of rose stem girdler (Agrilus rubicola) in raspberry canes in Utah, Salt Lake and Davis Counties during period 1959-1961. Det. by K. V. Krombein. (Raghuvir, Davis, Knowlton).

MISCELLANEOUS INSECTS

A PYRALID (Aglossa caprealis) - MARYLAND - Several larvae noted in basement of home at Landover Hills, Prince Georges County. (U. Md., Ent. Dept.).

BOXELDER BUG (Leptocoris trivittatus) - WISCONSIN - Many complaints of this pest entering houses since freezing weather of past week. (Wis. Ins. Sur.). UTAH - Invading homes and school rooms in area of Ogden, Weber County. (Knowlton).

A DRYWOOD TERMITE (Kalotermes approximatus) - FLORIDA - Single, reproductive adult collected in flight at Gainesville, Alachua County, on November 1, 1961. Collected and determined by L. A. Hetrick. (Fla. Coop. Sur.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - FLORIDA - Collected for first time from Township 29 in Hillsborough County on November 3, 1961, by C. H. Lynch. (Fla. Coop. Sur.).

AN ICHNEUMONID (Polistiphaga stupida) - FLORIDA - Collected in Steiner trap in sour orange tree at Bushnell, Sumter County, on October 25, 1961, by G. F. Wade, Sr. This is the first male specimen for the Division of Plant Industry collection. (Fla. Coop. Sur.).

CLOVER MITE (Bryobia praetiosa) - DELAWARE - Entering homes in Newark area, New Castle County, on November 11. (MacCreary).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Perid. saucia	Prod. ornith.	Laphyg. frug.	Trich. ni	Helio. zea
ARIZONA							
Mesa 11/9-15			3			1	6
FLORIDA							
Gainesville 11/15	1	3			2		1
Quincy 11/13	2	3					2
TENNESSEE (Counties)							
Maury 11/7-13	10	11		1	2		7
Robertson 11/7-13	9	55		2			33
Greene 11/7-13	1	39		1			10
Johnson 11/7-13	8	4		4	2		41
TEXAS							
Waco 11/11-17	28	1	49				
WISCONSIN							
Middleton 11/9-12	4	1	7				
Madison 11/7-14	3	13	9				

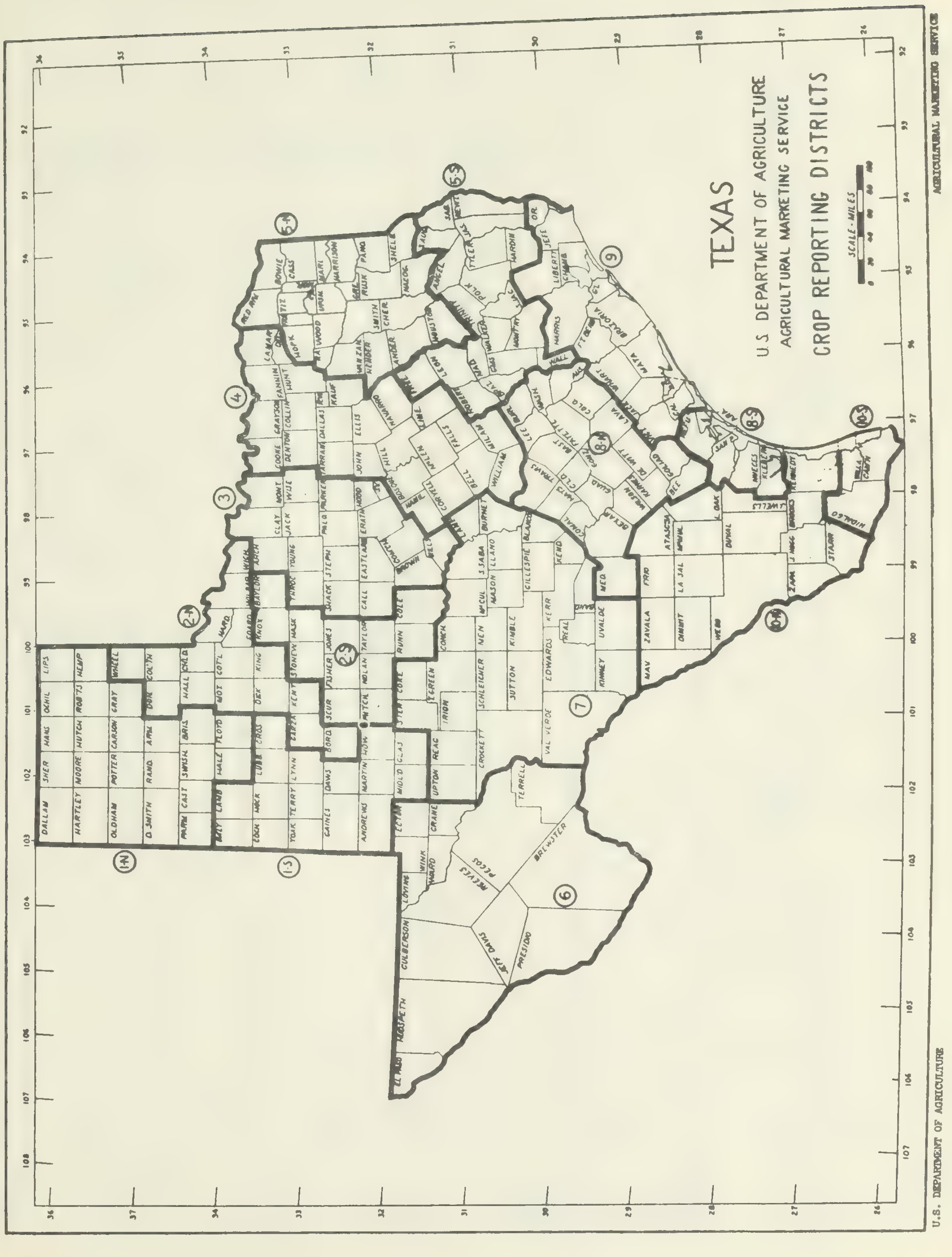
LOSSES AND PRODUCTION COSTS ATTRIBUTABLE TO INSECTS AND RELATED ARTHROPODS - 1960

Introduction: Since 1951 the cooperating states have been urged to furnish information on losses caused by insects; however, no overall tabulation of losses has been published in the Cooperative Economic Insect Report prior to those issued in Volume 10 for the year 1959. The losses presented in that volume began on page 841 and were completed on page 960. A total of 17 cooperating states submitted losses for 1959. Figures for 1960 were submitted by 18 states. Losses for 1960 from California, Florida and Minnesota were published in CEIR 11(38); those from Colorado, Utah, Wisconsin and Wyoming in CEIR 11(40); and cotton insect losses from Arizona in CEIR 11(41). Insect losses for the States of Arkansas, Georgia, Idaho, Illinois, Kansas, Maryland, Nebraska, New Mexico, Oklahoma and Texas are presented in this issue of the Report, utilizing the form approved by the Entomological Society of America's Committee on Insect Survey and Losses. The acceptance of this standard form is being emphasized and it was used by the majority of the states that submitted loss information for 1959 and 1960.

Special Instructions for Use of the Loss Table: 1. Under the "Pest or Pest Complex" columns, abbreviations of pests are used. A legend of the pest or pests can be found at the end of table. 2. The numerical figures in several of the columns have been reduced to thousands, the letter "M" being used when applicable. 3. The loss estimates for Texas were submitted on a district basis in most cases in 1960. As an aid to the reader, a map showing Crop Reporting Districts in Texas, is reproduced on the following page.

List of States and Individuals Who Submitted Loss Estimates for the 1960 Season

ARIZONA	Leon Moore et al.
ARKANSAS	W. P. Boyer
CALIFORNIA	Ronald M. Hawthorne et al.
COLORADO	Entomology Section, Colorado Experiment Station
FLORIDA	Robert E. Woodruff et al.
GEORGIA	W. C. Johnson
IDAHO	Arthur R. Gittens et al.
ILLINOIS	C. E. White
KANSAS	Leroy L. Peters and Chris C. Burkhardt
MARYLAND	W. C. Harding, Jr.
MINNESOTA	Entomology Section, Division of Plant Industry, Minnesota Department of Agriculture
NEBRASKA	Paul W. Bergman
NEW MEXICO	Division of Plant Industry, New Mexico Department of Agriculture
OKLAHOMA	Albert S. Pela and Horace W. VanCleave
TEXAS	Weldon H. Newton
UTAH	G. F. Knowlton, D. W. Davis, H. F. Thornley and H. Dorst
WISCONSIN	Wisconsin Department of Agriculture, Cooperative Insect Survey
WYOMING	Dale G. Fullerton et al.


TEXAS
U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
CROP REPORTING DISTRICTS
SCALE - MILES
1-N
1-S
2-N
2-S
3
4
5-N
5-S
6
7
8-N
8-S
9
10-N
10-S
U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

LOSSES AND PRODUCTION COSTS ATTRIBUTABLE TO INSECTS AND RELATED ARTHROPODS

ATTACKING GRAIN SORGHUM IN 1960 IN

NEBRASKA, KANSAS, OKLAHOMA AND TEXAS

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
GEOGRAPHICAL UNIT	FROM CROP REPORTING SERVICE			PEST OR PEST COMPLEX (see legend p.1066)	M ACRES NEEDING CONTROL PRACTICE	M ACRES TREATED	YIELD IN BU. PER ACRE		% REDUCTION YIELD/A FROM POTENTIAL	COST OF CONTROL PRACTICE			TOTAL COST TREAT ALL A TREATED M$	ESTIMATED GAIN FROM TREATMENT $/A	YIELD LOSS M$ PLUS CONTROL COST M$
	M ACRES PLANTED 1/	M ACRES HARVESTED 1/	AV YIELD (BU. PER ACRE)				TREATED 2/	UNTREATED 2/		PESTICIDE $/A	APPLICATION $/A	TOTAL $/A			
NEBRASKA (Districts)															
C, E, S, SE	1,705	1,705	50.5	Cla, Cw, W, Ra	34.1	34.1	50.5	48.5	4	1.50	.75	2.25	76.725	4.50	77
KANSAS (Districts)															
NW	408.0	261.0	24.8	SeT	408.0	306.0	29.4	24.8	15.6	---	---	.06	18.360	3.30	360.876
WC	581.0	423.0	33.5	SeT	581.0	435.8	36.6	33.5	8.5	---	---	.06	26.148	2.20	354.736
SW	998.0	833.0	36.5	SeT	998.0	718.6	39.6	36.5	7.8	---	---	.06	43.116	2.20	675.398
NC	688.0	555.0	43.8	Cb	5.5	3.0	70.0	63.4	9.4	---	---	3.33	9.990	1.49	22.035
	"	"	"	Ce	7.2	2.0	70.0	60.0	14.3	---	---	2.50	5.000	4.80	42.960
	"	"	"	SeT	688.0	350.9	70.0	60.4	13.7	---	---	.08	28.072	6.93	2,390.469
C	651.0	488.0	39.7	Cb	13.7	7.0	81.6	75.0	8.1	---	---	3.33	23.310	1.49	55.591
	"	"	"	Ce	6.8	2.0	81.6	71.6	12.3	---	---	2.50	5.000	4.80	40.040
	"	"	"	SeT	651.0	494.8	81.6	76.3	6.5	---	---	.08	39.584	3.79	643.922
	"	"	"	Sw	5.0	2.0	81.6	61.6	24.5	---	---	4.00	8.000	10.60	51.800
SC	899.0	683.0	38.9	Cb	3.4	2.0	77.3	82.4	6.6	---	---	3.33	6.660	.39	11.872
	"	"	"	Ce	4.1	2.0	77.3	67.3	12.9	---	---	2.50	5.000	4.80	27.630
	"	"	"	SeT	899.0	224.8	77.3	74.0	4.3	---	---	.08	17.984	2.33	180.399
	"	"	"	Sw	7.0	3.0	77.3	57.3	25.9	---	---	3.00	.900	11.60	59.300
NE	353.0	314.5	51.0	Cb	2.4	1.5	99.1	92.5	6.7	---	---	3.33	4.995	1.49	9.331
	"	"	"	Ce	2.2	1.0	99.1	89.1	10.1	---	---	2.65	2.650	4.65	11.410
	"	"	"	SeT	353.0	123.6	99.1	87.6	11.6	---	---	.09	11.124	8.31	1,936.937
	"	"	"	Sw	1.6	1.0	99.1	79.1	20.2	---	---	3.00	3.000	11.60	11.760
EC	396.0	318.7	48.9	Cb	4.8	2.5	93.0	86.4	7.1	---	---	3.33	8.325	1.49	19.406
	"	"	"	Ce	3.5	1.8	93.0	83.0	10.6	---	---	2.50	4.500	4.80	16.910
	"	"	"	SeT	396.0	241.6	93.0	85.5	8.1	---	---	.09	21.744	5.39	867.084
	"	"	"	Sw	5.0	2.0	93.0	73.0	21.5	---	---	3.15	6.300	11.45	50.100

Kansas continued on page 1065

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
SE	361.0	297.8	46.9	Cb	3.5	1.5	87.8	81.5	7.2	---	---	3.33	4.995	1.27	14.193
	"	"	"	Ce	6.3	3.0	87.8	77.8	11.4	---	---	2.50	7.500	4.80	31.590
	"	"	"	SeT	361.0	285.2	87.8	83.2	5.2	---	---	.09	25.668	3.27	280.204
	"	"	"	Sw	3.0	1.5	87.8	67.8	22.8	---	---	3.00	4.500	11.60	26.400
Totals 3/ (Kansas)	5,335.0	4,174.0	40.0										342.425		8,192.353
OKLAHOMA	---	724	32	Ce, Sw, Sm, A, Cla, Cb, G, Cfb, W, Swc, O 4/	177	33	35.46	18.06	49.1 5/	1.39	.87	2.26	75	11.48 (@ .79 bu.)	2,054
TEXAS (Districts)															
1-N	2,090.0	1,750.0	59.8	Sw, Ce, Fcb	395.8	301.4	66.4	57.2	14	1.00	1.00	2.00	602.8	5.82	676.2
1-S	2,175.0	1,985.0	29.5	Sw, Ce, Fcb	409.0	306.3	34.5	28.5	18	1.00	1.00	2.00	612.6	3.10	1,137.9
2-N	525.0	380.0	24.4	Sw, Sm, Ce	58.9	38.5	30.1	22.7	25	1.00	1.00	2.00	77.0	4.29	125.8
2-S	568.0	460.0	27.3	Sw, Sm, Ce	56.4	45.3	33.3	25.3	25	.75	1.00	1.75	79.3	5.05	444.0
3	140.0	85.0	24.4	Sw, Sm, Ce	69.0	61.0	29.4	23.0	24	.75	1.00	1.75	106.8	3.69	150.3
4	830.0	720.0	32.2	Sw, Sm, Ce	142.0	108.1	38.6	30.1	21	1.00	1.00	2.00	216.2	4.38	245.7
5-N	42.0	15.0	19.5	Sw, Sm, Ce	10.0	3.0	26.5	18.6	30	.75	1.00	1.75	5.3	4.97	52.3
5-S	45.0	35.0	26.4	Sw, Sm, Ce	26.0	15.0	34.1	23.4	31	1.00	1.00	2.00	30.0	6.75	126.3
6	22.0	9.0	58.6	Sw, Sm, Ce	6.1	4.9	65.3	56.7	13	1.00	1.00	2.00	8.9	5.31	17.7
7	230.0	165.0	29.2	Sw, Sm, Ce	25.0	18.7	34.2	28.0	18	1.00	1.00	2.00	37.4	3.27	70.6
8-N	650.0	578.0	34.2	Sw, Sm, Ce, Sb	104.7	80.3	40.5	32.1	20	1.00	1.00	2.00	160.6	5.14	333.8
8-S	450.0	435.0	41.0	Sw, Sm, Ce, Sb	119.4	75.7	48.0	39.2	19	1.00	1.00	2.00	151.4	5.68	481.6
9	270.0	210.0	33.2	Sw, Sm, Ce, Sb	40.6	24.3	40.1	31.1	22	1.00	1.00	2.00	48.6	5.65	173.3
10-N	280.0	260.0	35.1	Sw, Sm, Ce, Sb	37.5	24.7	41.0	34.0	17	1.00	1.00	2.00	49.4	3.95	174.1
10-S	250	220.0	32.0	Sw, Sm, Ce, Sb	34.9	23.6	38.9	30.0	21	1.00	1.00	2.00	47.2	5.57	85.5
Totals	8,567	7,307	38.0		1,535.3	1,130.8	40.1	31.9	21.0	.95	1.00	1.95	2,205.1	5.02	5,212.7

Footnotes and Legend for Nebraska, Kansas, Oklahoma and Texas on page 1066

FOOTNOTES

1/ M acres planted in Kansas and Texas is sorghum for all purposes; acres harvested for grain only.

2/ Yield in bushels per acre in Kansas on economically infested areas only.

3/ Total production in Kansas 166,960,000 bushels; total value $121,880,800 (based on .73 per bushel).

4/ Pest or pest complex in Oklahoma - corn earworm 30%, sorghum webworm 28.6%, sorghum midge 10.5%, armyworms 6.9%, corn leaf aphid 5%, chinch bug 4%, grasshoppers 3.4%, corn flea beetle 1.6%, wireworms 1%, southwestern corn borer 4%, others 8.6%.

5/ Untreated acres.

NOTE: M = 1,000

LEGEND

A = Armyworms

Cb = Chinch bug (Blissus leucopterus)

Ce = Corn earworm (Heliothis zea)

Cfb = Corn flea beetle (Chaetocnema pulicaria)

Cla = Corn leaf aphid (Rhopalosiphum maidis)

Cw = Cutworms

Fcb = A false chinch bug (Nysius sp.)

G = Grasshoppers

O = Other pests

Ra = Root aphids

Sb = Sugarcane borer (Diatraea saccharalis)

Swc = Southwestern corn borer (Zeadiatraea grandiosella)

SeT = Seed treatment - seed attacking insect complex

Sm = Sorghum midge (Contarinia sorghicola)

Sw = Sorghum webworm (Celama sorghiella)

W = Wireworms

LOSSES AND PRODUCTION COSTS ATTRIBUTABLE TO INSECTS AND RELATED ARTHROPODS

ATTACKING SORGHUM (FORAGE AND SILAGE) IN 1960

IN OKLAHOMA

GEOGRAPHICAL UNIT	FROM CROP REPORTING SERVICE			PEST OR PEST COMPLEX	M ACRES NEEDING CONTROL PRACTICE	M ACRES TREATED	YIELD IN TONS PER ACRE		% REDUCTION YIELD /A FROM POTENTIAL 1/	COST OF CONTROL PRACTICE			TOTAL COST TREAT ALL A TREATED M$	ESTIMATED GAIN FROM TREATMENT $/A	YIELD LOSS M$ PLUS CONTROL COST M$
	M ACRES PLANTED	M ACRES HARVESTED	AV YIELD (TONS PER ACRE)				TREATED	UNTREATED		PESTICIDE $/A	APPLICATION $/A	TOTAL $/A			
State	---	516	10.3	See below	126	24	10.8	8.24	23.7	1.39	.87	2.26	54.	41.26 (@ $17./ ton)	4,493

Pest or Pest Complex: Corn earworm 16.2%, corn leaf aphid 15.7%, chinch bug 15.4%, grasshoppers 10.8%, sorghum webworm 9.3%, armyworms 6.5%, corn flea beetle 5.9%, sorghum midge 5.3%, wireworms 1.2%, southwestern corn borer 1.1%, cutworms 0.8%, white grubs 0.5% and other pests 11.3%.

1/ Untreated acres.

NOTE: M = 1,000.

LOSSES AND PRODUCTION COSTS ATTRIBUTABLE TO INSECTS AND RELATED ARTHROPODS

ATTACKING HAY IN 1960

THROUGHOUT ILLINOIS

LINE NO	FROM CROP REPORTING SERVICE			PEST OR PEST COMPLEX (see legend)	M ACRES NEEDING CONTROL PRACTICE	M ACRES TREATED	% REDUCTION YIELD/A FROM POTENTIAL 1/	COST OF CONTROL PRACTICE			TOTAL COST TREAT ALL A TREATED	ESTIMATED GAIN OR LOSS FROM TREATMENT M$	YIELD LOSS M$ PLUS CONTROL COST M$	LINE NO
	M ACRES PLANTED	M ACRES HARVESTED	AV YIELD (TONS PER ACRE)					PESTICIDE $/A	APPLICATION $/A	TOTAL $/A				
1	---	2,193	2.08	Clw	313	5	10	2.25	1.00	3.25	16	0.97 1/	719	1
2	---	"	"	Pl	0	0	---	"	"	"	---	---	0	2
3	---	"	"	Ms	124	2	10	"	"	"	6	0.97 2/	284	3
4	---	"	"	Pa	8	0	10	"	"	"	0	0.97 2/	19	4
5	---	"	"	Yca	10	0	25	"	"	"	0	2.67 3/	57	5
6	---	"	"	Lclw	111	32	12	"	"	"	0	0.52 2/	304	6
7	---	"	"	G	132		10	"	"	"	11	0.97 4/	239	7
												Total	1,622	

FOOTNOTES

1/ Estimates.

2/ Loss.

3/ Gain.

4/ Loss as far as hay production was concerned, but it protected nearby crops from migrations.

NOTE: M = 1,000

LEGEND

Clw = Clover leaf weevil (Hypera punctata)

G = Grasshoppers

Lclw = Lesser clover leaf weevil (Hypera nigrirostris)

Ms = Meadow spittlebug (Philaenus spumarius)

Pa = Pea aphid (Macrosiphum pisi)

Pl = Potato leafhopper (Empoasca fabae)

Yca = Yellow clover aphid (Therioaphis trifolii)

LOSSES AND PRODUCTION COSTS ATTRIBUTABLE TO INSECTS AND RELATED ARTHROPODS

ATTACKING CORN IN 1960 IN

NEBRASKA, KANSAS, ILLINOIS, ARKANSAS AND MARYLAND

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
GEOGRAPHICAL UNIT	FROM CROP REPORTING SERVICE			PEST OR PEST COMPLEX (see legend p. 1069)	M ACRES NEEDING CONTROL PRACTICE	M ACRES TREATED	YIELD IN BU. PER ACRE		% REDUCTION YIELD/A FROM POTENTIAL	COST OF CONTROL PRACTICE			TOTAL COST TREAT ALL A TREATED M$	ESTIMATED GAIN OR LOSS FROM TREATMENT $/A	YIELD LOSS M$ PLUS CONTROL COST M$
	M ACRES PLANTED	M ACRES HARVESTED	AV YIELD (BU. PER ACRE)				TREATED	UNTREATED		PESTICIDE $/A	APPLICATION $/A	TOTAL $/A			
NEBRASKA	6,817	6,742	50.5	Ecb, Cr, Ce, Wbc, Sb, Scb, Scm, Cla, Cw, G, W, M	5,113	3,409	54.3	46.7	15	1.75	1.00	2.75	9,375	7.37	22,325
KANSAS (districts)															
NW	84.7	77.9	29.9	Cr	16.94	4.235	31.8	30.9	2.8	---	---	1.25	5.294	---	16.385
	"	"	"	Ce	77.90	---	31.8	30.8	3.1	---	---	---	---	---	75.563
WC	23.4	22.58	58.8	Ce	22.58	---	60.3	58.8	2.5	---	---	---	---	---	32.855
SW	44.6	43.63	70.9	Ce	43.63	1.200	74.2	70.9	4.4	---	---	4.00	4.800	-.80	145.419
NC	274.0	268.5	42.4	Cr	147.96	68.500	48.3	45.2	6.3	---	---	1.25	85.625	---	324.561
	"	"	"	Ce	268.50	---	48.3	46.3	4.2	---	---	---	---	---	520.890
	"	"	"	Ecb	76.17	2.780	48.3	47.3	2.1	---	---	1.50	4.170	---	76.833
C	121.9	118.89	35.6	Ce	118.89	---	36.7	35.6	3.1	---	---	---	---	---	126.855
SC	59.9	57.95	37.8	Ce	57.95	---	39.1	37.8	3.3	---	---	---	---	---	73.076
NE	623.5	611.9	47.7	Cr	293.04	43.645	56.8	51.2	9.9	---	---	1.25	54.556	---	1,409.297
	"	"	"	Ce	611.90	---	56.8	55.0	3.1	---	---	---	---	---	1,068.377
	"	"	"	Ecb	211.99	---	56.8	55.1	3.0	---	---	---	---	---	349.571
EC	441.5	433.2	47.5	Cr	39.74	13.245	52.3	50.7	3.0	---	---	1.25	16.556	---	57.668
	"	"	"	Ce	433.2	.210	53.2	50.8	2.9	---	---	3.52	.740	-2.06	631.479
	"	"	"	Ecb	158.94	4.400	52.3	50.6	3.3	---	---	1.50	6.600	---	268.692
SE	378.5	371.45	43.0	Ce	371.45	.100	44.2	43.0	2.8	---	---	3.00	.300	-1.84	432.852
Totals 1/	2,052.0	2,006.0	45.0	2/	3/								178.841		5,610.373

Table continued on page 1069

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
ILLINOIS State	---	10.251	68	Si	8,949 4/	1,891	107.3	99.7	7.08	2.35	.50	2.85	6,146	1.17	37,342
"	---	"	"	Cw	341	109	87.2 5/	78.2 5/	10.30 5/	2.25	1.00	3.25	354	3.19	1,108
"	---	"	"	Cw 6/ (Replanted)	---	115	---	---	---	---	---	10.00	1,150	---	1,150
Total															39,600
ARKANSAS	337	337	33	Ce, Swc, Ecb	42	0	---	26.4	20	---	---	---	---	---	990 7/
MARYLAND	---	474	60	Cw, Ce, N, Ecb	---	Less than one percent	---	60	10 (Approx.)	---	---	---	---	---	3,200 (Yield loss only)

FOOTNOTES

1/ Total production - 90,270,000 bu.
Total value $87,561,900.00 (based on .97/bu.).

2/ Corn rootworms (Diabrotica longicornis)
(D. undecimpunctata howardi)
(D. virgifera) - $1,807,911.00 or 2.1% loss.
Corn earworm - $3,107,366.00 or 3.5% loss.
European corn borer - $ 695,096.00 or .8% loss.

3/ Includes acres infested with corn earworm. Although control measures are not recommended, losses to field corn do occur.

4/ Based on percent of fields showing profit in 1959.

5/ 1959 records.

6/ Replanted due to cutworms.

7/ Loss figures in Arkansas computed for corn earworm, European corn borer and southwestern corn borer. Need for control computed on the 2 borers. Corn earworm causes annual losses in field corn, but control is not considered practical.

NOTE: M = 1,000.

LEGEND

Ce = Corn earworm (Heliothis zea)

Cla = Corn leaf aphid (Rhopalosiphum maidis)

Cr = Corn rootworms (Diabrotica spp.)

Cw = Cutworms

Ecb = European corn borer (Ostrinia nubilalis)

G = Grasshoppers

M = Mites

N = Nitidulids

Sb = Stalk borer (Papaipema nebris)

Scb = Seed-corn beetle (Agonoderus lecontei)

Scm = Seed-corn maggot (Hylemya cilicrura)

Si = Soil insects

Swc = Southwestern corn borer (Zeadiatraea grandiosella)

Wbc = Western bean cutworm (Loxagrotis albicosta)

W = Wireworms

LOSSES AND PRODUCTION COSTS ATTRIBUTABLE TO INSECTS AND RELATED ARTHROPODS

ATTACKING WHEAT IN 1960 IN

NEBRASKA, KANSAS, OKLAHOMA, TEXAS, NEW MEXICO, ARKANSAS AND ILLINOIS

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
GEOGRAPHICAL UNIT	FROM CROP REPORTING SERVICE			PEST OR PEST COMPLEX (see legend p. 1072)	M ACRES NEEDING CONTROL PRACTICE	M ACRES TREATED	YIELD IN BU. PER ACRE		% REDUCTION YIELD/A FROM POTENTIAL	COST OF CONTROL PRACTICE			TOTAL COST TREAT ALL A TREATED M$	ESTIMATED GAIN FROM TREATMENT $/A	YIELD LOSS M$ PLUS CONTROL COST M$
	M ACRES PLANTED	M ACRES HARVESTED	AV YIELD (BU. PER ACRE)				TREATED	UNTREATED		PESTICIDE $/A	APPLICATION $/A	TOTAL $/A			
NEBRASKA	3,306	3,011	28.5	C, Hf, W, Gb, G, Cb, Wcm, Wg, Wsm	661	165	29.2	27.8	5	1.00	1.25	2.25	371	24.22	1,066
KANSAS (Districts)															
NW	1,050	1,024	38.1	G	2.6	1.0	1/ 41.2	1/ 36.2	1/ 12	---	---	1.61	1.610	1/ 7.14	15.610
WC	1,164	1,133	36.1	G	2.9	1.2	39.1	34.1	13	---	---	1.61	1.932	7.14	16.807
SW	2,002	1,958	31.1	A	5.0	2.0	39.8	25.3	36	---	---	2.30	4.600	23.08	80.725
	"	"	"	G	5.0	1.5	34.6	29.6	14	---	---	1.61	2.415	7.14	33.040
NC	1,257	1,211	22.8	A	12.6	5.0	31.5	17.0	46	---	---	2.30	11.500	23.08	204.350
C	1,680	1,638	21.6	A	16.8	5.0	31.8	17.3	46	---	---	2.30	11.500	23.08	310.925
	"	"	"	G	1.7	.5	25.2	20.2	20	---	---	1.61	.805	7.14	11.305
	"	"	"	Gb	16.8	10.0	22.7	20.1	12	---	---	1.75	17.500	2.80	48.440
SC	2,230	2,144	24.8	A	16.7	5.0	35.0	20.5	41	---	---	2.30	11.500	23.08	308.388
	"	"	"	G	5.6	2.0	28.0	23.0	18	---	---	1.61	3.220	7.14	34.720
	"	"	"	Gb	11.2	5.0	26.2	23.6	10	---	---	1.75	8.750	2.80	36.960
SE	574	566	30.0	A	1.4	.5	39.3	24.8	37	---	---	2.30	1.150	23.08	23.988
	"	"	"	Gb	2.9	.5	32.2	29.6	8	---	---	1.75	.875	2.80	11.795
Totals 2/	10,761	10,380		3/ 4/									77.357		1,137.053
OKLAHOMA	4,984	4,756	25.5	G, Gm, C, Ap, A, G, Cb, Ega, Wg, Aga, W, O 5/	1,427	90	27.6	20.2	26.8	.93	.89	1.83	165	11.17 (@ $1.75 /bu.)	17,549

Table continued on page 1071

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
TEXAS (Districts)			6/												
1-N	2,590.0	2,180.0	19.3	Gb, Ap, Gm, Si,Ar	1,500.0	1,000	21.7	16.8	23	.75	1.00	1.75	1,750.0	6.83	5,165.0
1-S	75.0	55.0	20.5	Gb, Ap, Gm, Si,Ar	40	10	22.9	18.0	21	.75	1.00	1.75	17.0	6.83	221.9
2-N	525.0	320.0	11.7	Gb, Ap, Gm, Si,Ar	200	100	14.1	9.3	34	.75	1.00	1.75	175.0	6.83	858.0
2-S	460.0	344.0	12.7	Gb, Ap, Gm, Si,Ar	210	100	14.4	9.5	34	.75	1.00	1.75	175.0	6.83	926.3
3	245.0	166.0	11.0	Gb, Ap, Gm, Si,Ar	80	50	13.4	8.5	37	.60	1.00	1.60	80.0	6.98	289.4
4	330.0	302.0	20.0	Gb, Ap, Gm, Si,Ar	200	120	22.4	17.5	22	.60	1.00	1.60	192.0	6.98	750.4
7	56.5	49.5	15.5	Gb, Ap, Gm, Si,Ar	36	19	17.9	13.0	27	.60	1.00	1.60	30.4	6.98	149.1
Other districts	5.5	3.5	13.7	Gb, Ap, Gm, Si,Ar	2	1	16.1	11.2	30	.65	1.00	1.65	1.7	6.93	8.6
Totals	4,287.0	3,762.0	15.5		2,680.0	1,400	17.8	13.0	27	.68	1.00	1.68	2,352.0	6.90	8,368.7
NEW MEXICO (Spring and winter wheat)	---	188	17	G, Ap	15	5	18	16	2	1.00	1.00	2.00	10	1.20	160
ARKANSAS	136	136	30	Ap, Ar, Sb	0	0	---	---	0	0	0	0	0	0	0
ILLINOIS															
State	---	1,594	29	Ar	94	81	None available		10 7/	1.25	1.00	2.25	182	3.20	253
"	---	1,594	29	Gb	0	0	---	---	0	---	---	---	---	---	0
"	---	1,594	29	T	0	0	---	---	0	---	---	---	---	---	0

Footnotes and Legend for Nebraska, Kansas, Oklahoma,
Texas, New Mexico, Arkansas and Illinois on page 1072

FOOTNOTES

1. On infested portion of crop only.

2. Total production 290,640,000 bushels; total value $508,620,000 (based on $1.75/bu.).

3. Armyworm (*Pseudaletia unipuncta*) - $928,376 or 2% loss.
   Grasshoppers - $111,482 or trace loss.
   Greenbug (*Toxoptera graminum*) - $97,195 or trace loss.

4. Does not include fall armyworm (*Laphygma frugiperda*) damage to fall-seeded wheat. Will be added to 1961 losses.

5. Pest or pest complex in Oklahoma - Greenbug 52.5%, grain mites 11.0%, cutworms 6.6%, aphids (unspecified) 6.1%, armyworm 4.2%, grasshoppers 2.8%, chinch bug 1.9%, English grain aphid 0.9%, white grubs 0.8%, apple grain aphid 0.4%, wireworms 0.3% and other pests 12.5%.

6. Average yield in Texas based on 1959 figures.

7. Estimated.

NOTE: M = 1,000

LEGEND

A = Armyworm (*Pseudaletia unipuncta*)

Aga = Apple grain aphid (*Rhopalosiphum fitchii*)

Ap = Aphids (unspecified)

Ar = Armyworms

C = Cutworms

Cb = Chinch bug (*Blissus leucopterus*)

Ega = English grain aphid (*Macrosiphum granarium*)

G = Grasshoppers

Gb = Greenbug (*Toxoptera graminum*)

Gm = Grain mites

Hf = Hessian fly (*Phytophaga destructor*)

O = Other pests

Sb = Stink bugs

Si = Soil insects

T = Thrips

W = Wireworms

Wcm = Wheat curl mite (*Aceria tulipae*)

Wg = White grubs

Wsm = Wheat stem maggot (*Meromyza americana*)

LOSSES AND PRODUCTION COSTS ATTRIBUTABLE TO INSECTS AND RELATED ARTHROPODS

ATTACKING SOYBEANS IN 1960

IN ARKANSAS AND ILLINOIS

GEOGRAPHICAL UNIT	FROM CROP REPORTING SERVICE			PEST OR PEST COMPLEX (see legend)	M ACRES NEEDING CONTROL PRACTICE	M ACRES TREATED	YIELD IN BU. PER ACRE		% REDUCTION YIELD/A FROM POTENTIAL	COST OF CONTROL PRACTICE			TOTAL COST TREAT ALL A TREATED M$	ESTIMATED GAIN FROM TREATMENT $/A	YIELD LOSS M$ PLUS CONTROL COST M$
	M ACRES PLANTED	M ACRES HARVESTED	AV YIELD (BU. PER ACRE)				TREATED	UNTREATED		PESTICIDE $/A	APPLICATION $/A	TOTAL $/A			
ARKANSAS	2,480	2,480	22	Sb, Cew, T-cah, Gcw	164	164	22	13	41	1.20	.80	2.00	328	18.81 1/	1,462
ILLINOIS															
	---	5,000	26	Blb	357	12 1/	---	---	10 1/	1.25	1.00	2.25	27	3.06	1,859
	---	5,000	26	G	0.13	0.07 1/	---	---	20 1/	1.25	1.00	2.25	0.16	8.51	1
	---	5,000	26	Gcw	0	0	---	---	---	---	---	---	---	---	0
														TOTAL	1,860

FOOTNOTE

1/ Estimated.

NOTE: M = 1,000

LEGEND

Blb = Bean leaf beetle (*Cerotoma trifurcata*)

Cew = Corn earworm (*Heliothis zea*)

G = Grasshoppers

Gcw = Green cloverworm (*Plathypena scabra*)

Sb = Stink bugs

T-cah = Three-cornered alfalfa hopper (*Spissistilus festinus*)

LOSSES AND PRODUCTION COSTS ATTRIBUTABLE TO INSECTS AND RELATED ARTHROPODS

ATTACKING ALFALFA HAY IN 1960 IN

IDAHO, NEBRASKA, NEW MEXICO, GEORGIA AND MARYLAND

GEOGRAPHICAL UNIT	FROM CROP REPORTING SERVICE			PEST OR PEST COMPLEX (see legend)	M ACRES NEEDING CONTROL PRACTICE	M ACRES TREATED	YIELD IN TONS PER ACRE		% REDUCTION YIELD/A FROM POTENTIAL	COST OF CONTROL PRACTICE			TOTAL COST TREAT ALL A TREATED M$	ESTIMATED GAIN FROM TREATMENT $/A	YIELD LOSS M$ PLUS CONTROL COST M$
	M ACRES PLANTED	M ACRES HARVESTED	AV YIELD (TONS PER ACRE)				TREATED	UNTREATED		PESTICIDE $/A	APPLICATION $/A	TOTAL $/A			
IDAHO															
State	950	950	3	Aw	160	80	4-5	varies	---	.90	1.50	2.40	192	---	512
South area	700	700	4	Pa	300	50	4	2 plus	---	---	---	5.00	250	---	2,650
NEBRASKA	---	1,764	2.3	Saa, Pa, G, Bb, L, Cw, Ww, W	353	176	2.50	2.27	10	1.50	1.00	2.50	440	3.45	481
NEW MEXICO	---	159	3.7	Lb, Saa, Pa, T, G	50	10	4.0	3.2	8	1.50	1.00	2.50	25	16.70	825
GEORGIA															
North area	27.3	27.3	1.99	Aw	20.55	8	2.79	1.25	51.6	6.20	3.70	9.90	79	45.60	833
MARYLAND	---	110	2.55	Aw, Ms, Pa, Pl, Pb	110	100	2.71	1.95	25	3.00	1.10	4.10	410	35.00	676

LEGEND

Aw = Alfalfa weevil (*Hypera postica*)
Bb = Blister beetles
Cw = Cutworms
G = Grasshoppers
L = Leafhoppers
Lb = Lygus bugs (*Lygus* spp.)
Ms = Meadow spittlebug (*Philaenus spumarius*)

Pa = Pea aphid (*Macrosiphum pisi*)
Pb = Plant bugs
Pl = Potato leafhopper (*Empoasca fabae*)
Saa = Spotted alfalfa aphid (*Therioaphis maculata*)
T = Thrips
W = Weevils
Ww = Webworms

NOTE: M = 1,000

LOSSES AND PRODUCTION COSTS ATTRIBUTABLE TO INSECTS AND RELATED ARTHROPODS

ATTACKING PEACHES, APPLES, GRAPES, OATS AND RICE IN 1960

IN ARKANSAS

CROP	FROM CROP REPORTING SERVICE			PEST OR PEST COMPLEX (see legend)	M ACRES NEEDING CONTROL PRACTICE	M ACRES TREATED	YIELD IN BU., TONS OR LBS. PER ACRE		% REDUCTION YIELD/A FROM POTENTIAL	COST OF CONTROL PRACTICE			TOTAL COST TREAT ALL A TREATED M$	ESTIMATED GAIN FROM TREATMENT $/A	YIELD LOSS M$ PLUS CONTROL COST M$
	M ACRES PLANTED	M ACRES HAR-VES-TED	AV YIELD PER ACRE				TREATED	UNTREATED		PEST-ICIDE $/A	APP-LICA-TION $/A	TOTAL $/A			
PEACHES	10	10	200 bu.	Pc, Ofm, Si	10	10	200 bu.	200 bu.	0	15.00	5.00	20.00	200	334.00 1/	336 2/
APPLES	1	1	250 bu.	Cm, Si, Lr, M	1	0.95	250 bu.	225 bu.	10	30.00	14.00	44.00	42	160.00 3/	53 3/
GRAPES	4	4	2 tons	Gbm, Si, Gc, Gm	4	3.6	2.1 tons	1.5 tons	28	8.00	5.00	13.00	46.8	70.80	74.8
OATS	144	144	37 bu.	A, Sb, Aw	0	0	---	---	0	0	0	0	0	0	0
RICE	383	383	3,400 lbs.	Rsb	3	3	3,400 lbs.	2,500 lbs.	26	1.00	.85	1.85	8	39.87	1,157
	383	383	3,400 lbs.	Rww 4/ Mae	383	230	3,400 lbs.	2,040 lbs.	40	---	---	.65 5/	149	60.25	308

FOOTNOTES

1/ Gain was on quality, not yield.

2/ Control cost plus quality loss.

3/ Gain and loss figured on yield and quality.

4/ Rice water weevil is controlled, on a considerable acreage, by drainage.

5/ Seed treatment.

LEGEND

A = Aphids

Aw = Armyworm (*Pseudaletia unipuncta*)

Cm = Codling moth (*Carpocapsa pomonella*)

Gbm = Grape berry moth (*Paralobesia viteana*)

Gc = Grape curculio (*Craponius inaequalis*)

Gm = Grape mealybug (*Pseudococcus maritimus*)

Lr = Leaf rollers

M = Mites

Mae = *Maecolaspis* sp.

Ofm = Oriental fruit moth (*Grapholitha molesta*)

Pc = Plum curculio (*Conotrachelus nenuphar*)

Rsb = Rice stink bug (*Oebalus pugnax*)

Rww = Rice water weevil (*Lissorhoptrus oryzophilus*)

Sb = Stink bugs

Si = Scale insects

NOTE: M = 1,000

LOSSES AND PRODUCTION COSTS ATTRIBUTABLE TO INSECTS AND RELATED ARTHROPODS ATTACKING TOBACCO, CLOVER-TIMOTHY AND PROCESSING TOMATOES

IN 1960 IN MARYLAND

CROP AND GEOGRAPHICAL UNIT	FROM CROP REPORTING SERVICE			PEST OR PEST COMPLEX (see legend)	M ACRES NEEDING CONTROL PRACTICE	M ACRES TREATED	YIELD IN TONS OR LBS PER ACRE		% REDUCTION YIELD/A FROM POTENTIAL	COST OF CONTROL PRACTICE			TOTAL COST TREAT ALL A TREATED M$	ESTIMATED GAIN FROM TREATMENT $/A	YIELD LOSS M$ PLUS CONTROL COST M$
	M ACRES PLANTED	M ACRES HARVESTED	AV YIELD PER ACRE				TREATED	UNTREATED		PESTICIDE $/A	APPLICATION $/A	TOTAL $/A			
TOBACCO															
5 Counties (Anne Arundel, Calvert, Charles, Prince Georges, St. Marys)	---	37.5	875 lbs.	A, Fb, Hw, Bw	37.5	23	965 lbs.	765 lbs.	21	3.50	1.50	5.00	115	124.00	1,915
CLOVER-TIMOTHY															
State	---	207	1.60 tons	Cw, Msb, Pb	207	60	1.73 tons	1.43 tons	18	2.00	1.00	3.00	180	11.00	1,630
TOMATOES (Processing)															
State	---	8.6	12 tons	Fb, A, Hw, Tf	8.6	6.6	14 tons	9 tons	35	4.00	6.00	10.00	66	115.00	376

LEGEND

A = Aphids	Hw = Hornworms (Protoparce spp.)
Bw = Budworms (Heliothis spp.)	Msb = Meadow spittlebug (Philaenus spumarius)
Cw = Clover weevils	Pb = Plant bugs
Fb = Flea beetles	Tf = Tomato fruitworm (Heliothis zea)

NOTE: M = 1,000

LOSSES AND PRODUCTION COSTS ATTRIBUTABLE TO INSECTS AND RELATED ARTHROPODS
ATTACKING SEVERAL CROPS IN 1960 IN
NEBRASKA

CROP AND GEOGRAPHICAL UNIT	FROM CROP REPORTING SERVICE			PEST OR PEST COMPLEX (see legend)	M ACRES NEEDING CONTROL PRACTICE	M ACRES TREATED	YIELD IN BU., TONS OR LBS. PER ACRE		% REDUCTION YIELD/A FROM POTENTIAL	COST OF CONTROL PRACTICE			TOTAL COST TREAT ALL A TREATED M$	ESTIMATED GAIN OR LOSS FROM TREATMENT $/A	YIELD LOSS M$ PLUS CONTROL COST M$
	M ACRES PLANTED	M ACRES HARVESTED	AV YIELD PER ACRE				TREATED	UNTREATED		PESTICIDE $/A	APPLICATION $/A	TOTAL $/A			
OATS NE	1,274	1,213	35.5 bu.	Ch, C, Ega,G, Gb,W,Wg	255	13	36.4 bu.	34.6 bu.	5	.90	.50	1.40	18	1.08 (loss)	454
ALFALFA SEED NE	---	50	85 lbs.	Pb, L, G, A, C	50	5	102 lbs.	85 lbs.	20	1.60	1.00	2.60	13	3.74	778
FIELD BEANS NW	74	71	25 bu.	Wbc, Mbb, G, T	66.6	66.6	25.3 bu.	21.5 bu.	15	1.80	1.25	3.05	203.13	16.42	203
SUGAR BEETS NW, C	69.5	68.7	17.8 tons	Ww, L, G, W	69.5	69.5	17.8 tons	15.1 tons	15	3.00	1.00	4.00	278	31.68	278
POTATOES NW	17.5	16.9	281.7 bu.	Pp, Fb, W, Wg, G,Cpb, L, Pb, Bb	17.5	15.75	283.9 bu.	244.5 bu.	14	1.90	1.30	3.20	50.4	35.46	119

LEGEND

A = Aphids
Bb = Blister beetles
C = Cutworms
Ch = Chinch bug (Blissus leucopterus)
Cpb = Colorado potato beetle (Leptinotarsa decemlineata)
Ega = English grain aphid (Macrosiphum granarium)
Fb = Flea beetles
G = Grasshoppers
Gb = Green bug (Toxoptera graminum)

NOTE: M = 1,000

L = Leafhoppers
Mbb = Mexican bean beetle (Epilachna varivestis)
Pb = Plant bugs
Pp = Potato psyllid (Paratrioza cockerelli)
T = Thrips
W = Wireworms
Wbc = Western bean cutworm (Loxagrotis albicosta)
Wg = White grubs
Ww = Webworms

LOSSES AND PRODUCTION COSTS ATTRIBUTABLE TO INSECTS AND RELATED ARTHROPODS ATTACKING POULTRY IN OKLAHOMA AND TEXAS

IN 1960

STATE AND CLASS OF POULTRY	FROM REPORTING SERVICE			PEST OR PEST COMPLEX (see legend)	M BIRDS NEEDING CONTROL PRACTICE	M BIRDS TREATED	YIELD IN LBS. OF MEAT OR NUMBER OF EGGS		% REDUCTION YIELD PER BIRD FROM POTENTIAL	COST OF CONTROL PRACTICE			TOTAL COST TREAT ALL BIRDS TREATED M$	ESTIMATED GAIN FROM TREATMENT $/BIRD	YIELD LOSS M$ PLUS CONTROL COST M$
	M BIRDS INVENTORY OR ESTIMATE	M POUNDS OR EGGS HARVESTED	AV YIELD PER BIRD				TREATED	UNTREATED		PESTICIDE $ PER BIRD	APPLICATION $ PER BIRD	TOTAL $ PER BIRD			
OKLAHOMA															
Laying hens	4,041**	787,000 eggs*	180 eggs	L, M, F, Mo, Ft, Fl, C, O 1/	2,469	1,358	198 eggs	134 eggs	32.2 2/	.08	.05	.13	177.	1.31 (@ .272 /doz.*)	1,781.
Broilers	6,000**	16,832 lbs.*	3.07* lbs.	L, M, F, Mo, Fl, Ft, C, O 3/	---	---	---	---	---	.03	.03	.06	---	---	---
Turkeys	1,205**	18,685 lbs.*	18.5 lbs.*	L, M, C, F, Ft, Mo, Fl, O 4/	---	---	---	---	---	.12	.08	.20	---	---	---
TEXAS															
Laying hens	16,105	---	187 eggs (@ .35/ doz.)	M, L, Fl, Mo, Ft	12,000	8,000	195 eggs	175 eggs	20.3	.25	.15	.40	3,200.0	.30	4,400.0
Broilers	84,279	---	3.2 lbs. (@ .17/ lb.)	M, L, Fl, Mo, Ft	50,000	30,000	3.8 lbs.	2.7 lbs.	28.0	.10	.05	.15	4,500.0	.037	5,240.0
Turkeys	3,110	---	20 lbs. (@ .25/ lb.)	M, L, Fl, Mo, Ft	1,500	900	22.0 lbs.	19.0 lbs.	14.0	.30	.20	.50	450	.25	600.0
Total Loss to Texas Poultry Industry															10,040.0

FOOTNOTES

* 1959 data (latest information available).

** 1960 estimate.

1/ Pest or pest complex on laying hens in Oklahoma: Lice 47.7%, mites 31.1%, flies 5.2%, mosquitoes 2.5%, fowl tick 2.1%, fleas 1.8%, chiggers 1.3%, other pests 8.3%

2/ Untreated.

NOTE: M = 1,000

3/ Pest or pest complex on broilers in Oklahoma: Lice 45.3%, mites 30.7%, flies 6.1%, mosquitoes 5.0%, fleas 2.3%, fowl tick 2.2%, chiggers 0.3%, other pests 8.1%.

4/ Pest or pest complex on turkeys in Oklahoma: Lice 32.3%, mites 24.7%, chiggers 20.4%, flies 4.1%, fowl tick 3.0%, mosquitoes 2.7%, fleas 1.4%, other pests 11.4%.

LEGEND

C = Chiggers

F = Flies

Fl = Fleas

Ft = Fowl tick (*Argus persicus*)

L = Lice

M = Mites

Mo = Mosquitoes

O = Other pests

LOSSES AND PRODUCTION COSTS ATTRIBUTABLE TO INSECTS AND RELATED ARTHROPODS

ATTACKING LIVESTOCK IN OKLAHOMA AND TEXAS

IN 1960

STATE AND CLASS OF LIVESTOCK	FROM LIVESTOCK REPORTING SERVICE			PEST OR PEST COMPLEX (see legend)	M HEAD NEEDING CONTROL PRACTICE	M HEAD TREATED	YIELD IN LBS. OF MEAT OR MILK/ANIMAL		% REDUCTION YIELD PER ANIMAL FROM POTENTIAL 2/	COST OF CONTROL PRACTICE			TOTAL COST TREAT ALL A TREATED M$	ESTIMATED GAIN FROM TREATMENT $/ANIMAL	YIELD LOSS M$ PLUS CONTROL COST M$
	M HEAD INVENTORY OR ESTIMATE	M POUNDS HARVESTED	AV YIELD LBS. PER ANIMAL				TREATED	UNTREATED		PESTICIDE $ PER ANIMAL	APPLICATION $ PER ANIMAL	TOTAL $ PER ANIMAL			
OKLAHOMA															
BEEF (Cattle and calves)	3,545	1,114,790*	315	Ccg, H,L, F, Ti, Ta, Sw, Sf, Mo, Hf, O 1/	2,926	1,525	361	244	32.4	.67	.58	1.25	1,906.	27.53 (@ .246/lb.*)	42,223.
DAIRY (Cows and heifers 2 yrs. old or older)	366	1,541*	4,560	Hf, Ccg, L, Sf, Ta, Ti, Sw, Mo, Hf, O 3/	316	243	4,861	3,352	30.0	1.02	.73	1.75	425.	67.66 (@ .046/lb.*)	5,492.
TEXAS															
BEEF CATTLE	8,507	-----	600 lbs./yr.(@ .20/lb.)	H, Ta, Ccg, Sw, Ti, L, Sf	8,000	6,500	615	585	.05	1.00	.50	1.50	9,750.0	4.50	16,500.0
DAIRY CATTLE	575 4/	-----	5,090 (lbs. of milk)	H, Ta, Ccg, Ti, L, Mo, Sw	500	350	5,200	4,924	5.4	.25	.15	.40	140	7.42	1,253.

FOOTNOTES

* 1959 data (latest information available).

1/ Pest or pest complex in Oklahoma: Common cattle grub 22.8%, horn fly 21.5%, lice 18.9%, flies (unspecified) 10.5%, ticks 7.9%, tabanids (horse flies) 7.4%, screw-worm 3.9%, stable fly 2.5%, mosquitoes 0.4%, house fly 0.1%, other pests 4.1%.

2/ Untreated animals only in Oklahoma.

3/ Pest or pest complex in Oklahoma: Horn fly 22.8%, flies (unspecified) 18.4%, common cattle grub 17.1%, lice 14.2%, stable fly 8.3%, tabanids (horse flies) 6.5%, ticks 3.0%, screw-worm 1.5%, mosquitoes 1.4%, house fly 0.9%, other pests 5.9%.

4/ Average number for 1960.

NOTE: M = 1,000

LEGEND

Ccg = Common cattle grub (Hypoderma lineatum)

F = Flies (unspecified)

H = Horn fly (Haematobia irritans)

Hf = House fly (Musca domestica)

L = Lice

Mo = Mosquitoes

O = Other pests

Sf = Stable fly (Stomoxys calcitrans)

Sw = Screw-worm (Callitroga hominivorax)

Ta = Tabanids (horse flies)

Ti = Ticks

LOSSES AND PRODUCTION COSTS ATTRIBUTABLE TO INSECTS AND RELATED ARTHROPODS

ATTACKING COTTON IN 1960 IN

NEW MEXICO, TEXAS, OKLAHOMA AND ARKANSAS

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
GEOGRAPHICAL UNIT 1/	FROM CROP REPORTING SERVICE			PEST OR PEST COMPLEX (see legend p. 1081)	M ACRES NEEDING CONTROL PRACTICE	M ACRES TREATED	YIELD IN BALES OR LBS. PER ACRE 2/		% REDUCTION YIELD/A FROM POTENTIAL	COST OF CONTROL PRACTICE			TOTAL COST TREAT ALL A TREATED M$	ESTIMATED GAIN FROM TREATMENT $/A	YIELD LOSS M$ PLUS CONTROL COST M$
	M ACRES PLANTED	M ACRES HARVESTED	AV YIELD PER ACRE				TREATED	UNTREATED		PESTICIDE $/A	APPLICATION $/A	TOTAL $/A			
NEW MEXICO	---	203	686 lbs.	B, T, Lb, Fh, G	203	75	2.25 bales	1.25 bales	23	10.00	5.00	15.00	1,125	70.00	9,925
TEXAS (Districts)			all bales				all bales	all bales							
1-N	500	460	1.10	B, Fh, T	430.9	359.9	1.3	.85	35	7.00	5.00	12.00	4,319.3	65.25	8,952.1
1-S	1,812	1,700	.80	B, Fh, T	1,654.4	1,415.9	1.0	.60	40	7.00	5.00	12.00	16,990.7	58.00	30,823.7
2-N	568	525	.60	B, Bw, Fh	419.4	320.2	.75	.53	29	5.00	3.00	8.00	2,562.0	31.90	5,726.4
2-S	702	660	.55	B, Bw, Fh	530.6	390.3	.70	.49	30	5.00	3.00	8.00	3,122.4	30.45	7,384.5
3	64	60	.40	B, Bw, Fh	37.6	28.4	.50	.34	33	4.00	3.00	7.00	190.6	23.20	404.0
4	1,277	1,200	.38	B, Bw,Fh, T	880.4	637.3	.52	.30	42	6.00	4.00	10.00	6,373.2	31.90	14,128.1
5-N	127	115	.39	B, Bw,Fh, T	100.1	53.2	.48	.30	37	4.00	3.00	7.00	372.3	26.10	1,596.4
5-S	98	93	.74	B, Bw, Fh	76.2	63.8	.90	.51	43	7.00	7.00	14.00	893.1	56.55	1,594.3
6	177	167	1.60	B, Cl, Fh	151.8	150.6	1.90	.85	55	12.00	9.00	21.00	3,161.8	166.75	3,361.9
7	120	115	.54	B, Fh	59.1	31.5	.60	.40	33	5.00	3.00	8.00	252.2	29.00	762.6
8-N	287	260	.40	B, Bw, Fh	206.4	151.3	.56	.30	46	6.00	4.00	10.00	1,513.3	37.70	3,590.6
8-S	231	215	.67	B, Bw,Fh,Pbw	186.1	161.5	.77	.31	60	7.00	4.00	11.00	1,776.6	66.70	3,417.4
9	272	250	.41	B, Bw, Fh	189.2	155.7	.60	.30	50	8.00	5.00	13.00	2,024.2	43.50	3,481.5
10-N	101	95	.53	B, Bw,Fh,Pbw	72.1	69.7	.67	.32	53	8.00	5.00	13.00	906.6	50.75	977.7
10-S	464	435	.76	B, Bw,Fh,Pbw	377.6	357.3	.88	.39	66	10.00	7.00	17.00	6,074.1	61.05	7,313.4
Totals	6,800	6,350	.66		5,371.9	4,346.6	.81	.46	43.5	6.73	4.67	11.40	49,544.4	50.75	93,151.0

Table continued on page 1081

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
OKLAHOMA	653	633	349 lbs.	Bw, B, Cf, T, Ca, G, Clw, Cl, W, O 3/	579	296	429 lbs.	250 lbs.	41.7 4/	7.36	4.49	11.84	3,505	38.82 (@ $0.283 /lb.)	17,841
ARKANSAS	1,360	1,295	493 lbs.	Bw, B, A, M, Pb	1,185	1,180	494 lbs.	322 lbs.	34.7	1.20	.80	2.00	11,328 5/	61.84	13,659

FOOTNOTES

1/ Crop reporting districts in Texas.

2/ Bales per acre in New Mexico and Texas; pounds per acre in Oklahoma and Arkansas.

3/ Pest or pest complex in Oklahoma: Boll weevil 40.3%, bollworms 36.0%, cotton fleahopper 6.9%, thrips 5.1%, cotton aphid 2.4%, grasshoppers 2.0%, cotton leafworm 0.3%, cabbage looper 0.1%, other pests 6.8%.

4/ Untreated acres.

5/ Based on multiple treatments at $2.00 per acre.

NOTE: M = 1,000

LEGEND

A = Aphids

B = Bollworms (*Heliothis* spp., et al.)

Bw = Boll weevil (*Anthonomus grandis*)

Ca = Cotton aphid (*Aphis gossypii*)

Cf = Cotton fleahopper (*Psallus seriatus*)

Cl = Cabbage looper (*Trichoplusia ni*)

Clw = Cotton leafworm (*Alabama argillacea*)

Fh = Fleahoppers

G = Grasshoppers

Lb = Lygus bugs

M = Mites

O = Other pests

Pb = Plant bugs

Pbw = Pink bollworm (*Pectinophora gossypiella*)

T = Thrips

W = Webworms

INTERCEPTIONS OF SPECIAL INTEREST AT U. S. PORTS OF ENTRY

Some important interceptions that were reported September 30, 1961, by the Plant Quarantine Division, ARS, USDA, follow. These reports are based on identifications received from Federal taxonomists at the U. S. National Museum during the month, but do include any of special interest from recent months that were not previously reported.

A POTATO WEEVIL (*Premnotrypes* sp.) 8 times, collectively, in potatoes from Ecuador, Peru and Colombia; at Baltimore, Maryland, 2 times in stores; at Wilmington, North Carolina, one time in stores; at Mobile, Alabama, one time in stores; at Miami, Florida, 4 times in baggage for Florida and New York.

A CRANE FLY (*Tipula oleracea* group, *paludosa* Mg. (or probably that root damaging dipteron)) at New York, New York, in lettuce stores from France and at Hoboken, New Jersey, in a Washington mail shipment of rose budwood from England packed in sphagnum.

A XYLORYCTID (*Ptochoryctis tsugensis* Kft.) on *Pinus pentaphylla* in baggage destined for New Orleans from Japan at Seattle, Washington.

CHINESE ROSE BEETLE (*Adoretus sinicus* Burm.) in baggage destined for California at Honolulu, Hawaii.

A WEEVIL (*Cylas puncticollis* Boh.) in transit sweetpotato cargo from Ghana, at Baltimore, Maryland; also, *Cylas* sp. in sweetpotato in African stores, at New York, New York.

A WEEVIL (*Heilipus* sp., probably *lauri* Boh.) in baggage from Costa Rica for Florida, at Miami, Florida; also, *Heilipus* sp. from Colombia in baggage for Miami, at Miami; and in baggage from Mexico, at Brownsville, Texas.

A LEAF BEETLE (*Lema melanopa* (L.)) in cabbage stores from Italy, at New York, New York.

WHITE GARDEN SNAIL (*Theba pisana* (Müller)) in cargo of dried roots and tubers for Beltsville, Maryland, at Washington, D. C., Inspection House; also in miscellaneous cargo from Mediterranean region, at Norfolk, Virginia, 2 times in cargo for Virginia; at New York, New York, 2 times with cargo for that State; at New Orleans, Louisiana, one time with cargo for unknown destination.

KHAPRA BEETLE (*Trogoderma granarium* Everts) 18 times; 4 times at Houston, Texas, with old bagging cargo for Texas; one time at Boston, Massachusetts, in stores; one time at Port Arthur, Texas, in stores; 12 times (including 2 probable) at New York, New York (10 times with cargoes of Gum Arabic, nutmeg, *Psyllium* husks and pistachio nuts for New York, and cinnamon quills for Mexico; and 2 times in stores).

PINK BOLLWORM (*Pectinophora gossypiella* (Saunders)) in okra in baggage for Florida from Haiti, at Miami, Florida.

LARGE WHITE BUTTERFLY (*Pieris brassicae* (L.)) 2 times in stores from Italy, at New York, New York.

A PYRAUSTID (*Evergestis forficalis* (L.)) 4 times in stores at New York, New York.

ASIATIC RICE BORER (*Chilo suppressalis* (Wlk.)) in straw jackets in baggage for New York from Spain, at New York, New York.

A STENOMID (*Stenoma catenifer* Wlsm.) at Baltimore, Maryland, in stores from Colombia; at Tampa, Florida, in baggage from Honduras for that city; at Miami, Florida, from Nicaragua and Colombia for Florida destinations.

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